

BLUE

Date: Wednesday, 5/16/2007 8:13:15 AM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services
 Job Number : 32373
 Estimate Number : 11057
 P.O. Number : N/A
 This Issue : 5/16/2007 S.O. No. : N/A
 Prsht Rev. : NC
 First Issue : N/A Type : PURCHASED PARTS
 Previous Run : 29108
 Written By : 2207.05.16
 Checked & Approved By :
 Comment : Est. C 02.11.26 Added P/O KJ

Drawing Name : 02.250 SUPPORT
 Part Number : D28911
 Drawing Number : D2891 REV A1
 Project Number : N/A
 Drawing Revision : A1
 Material : N/A
 Due Date : 6/5/2007
 Qty: 10 Um: Each

Split 2

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 PG PURCHASING



Comment: PURCHASING
 Issue P/O: 3795
 Description: D6104-003
 Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104
 Material release note required.
 Blank size makes (2) D2891-1

20705117 (16)

2.0 D6104003 17-4 SS Roundbar 3.25"OD



Comment: Qty.: 1.0000 Each(s)/Unit Total: 16.0000 Each(s)
 Support 2.25 dia

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
 Receive & Inspect for Transit Damage
 Ensure Material Release Note is attached

5/07/06/05 (16)

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI LATHE
 Turn blank for Haas as per Folio FA046

5L / 2.8.07/06/07

5.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

5L / 2.8.07/06/07

Date: Wednesday, 5/16/2007 8:13:15 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.250 SUPPORT

Job Number: 32373

Part Number: D28911

Job Number: 

Seq. #: Machine Or Operation: Description :

6.0 HAAS1 HAAS CNC VERTICAL MACHINING #1





Comment: HAAS
Machine as per Folio FA046
Tumble & Deburr

J.F. 07/06/27

7.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE





Comment: INSPECT PARTS AS THEY COME OFF MACHINE

J.F. 07/06/27

8.0 QC8 SECOND CHECK





Comment: SECOND CHECK

SA 07/06/27!

9.0 SPRAY PAINTING SPRAY PAINTING





Comment: SPRAY PAINTING

R/D: 4038 C/07/06/27 (2)

- PRIME
- PAINT DELFLEET BLUE
- CLEAR DELFLEET

10.0 QC14 INSPECT SPRAY PAINT





Comment: INSPECT SPRAY PAINT

Jaw 703 (2)

11.0 PACKAGING 1 PACKAGING RESOURCE #1





Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: cross table

en 07/07/04 (2)

12.0 QC21 FINAL INSPECTION/W/O RELEASE





(2)

Comment: FINAL INSPECTION/W/O RELEASE

07/07/04

Job Completion 

U 07/07/04

Description: Ø2.250 Support	Part Number: D2891.1
Inspection Dwg: D2891 Rev. A1	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2891 Rev.A1/DSK076 Rev.A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	2.274	2.279		2.275	2.276	2.278	2.277		
B	3.702	3.722		3.680	3.712	3.712	3.710		
C	2.564	2.584		2.574	2.574	2.574	2.574		
D	0.718	0.738		.733	.730	.730	.730		
E	0.090	0.110		.087	.090	.090	.090		
F	2.464	2.484		2.474	2.474	2.474	2.474		
G	2.029	2.049		2.032	2.032	2.032	2.032		
H	2.964	2.984		2.974	2.974	2.974	2.974		
I	0.913	0.933		.918	.919	.919	.919		
J	0.022	0.042		.032	.032	.032	.032		
K	0.090	0.110		.099	.099	.099	.098		
L									
HAAS Section									
AA	0.188	0.193	DT8706			Ø.189"	Ø.189"		
AB	0.240	0.260				.242"	.242"		
AC	0.115	0.150				.125"	.125"		
AD	0.040	0.060				.052"	.052"		
AE	0.010	0.020				.015"	.015"		
AF	0.240	0.260				Ø.250"	Ø.250"		
AG	0.290	0.310				.305"	.305"		
AH	0.115	0.150				.125"	.125"		
AI	0.454	0.474				.456"	.462"		
AJ	2.779	2.789				2.784"	2.784"		
AK	0.240	0.260				Ø.250"	Ø.250"		
AL	1.002	1.042				1.041"	1.042"		
AM	0.053	0.073				Ø.063"	Ø.063"		
AN	0.257	0.262	DT8683			Ø.257"	Ø.257"		
AO	1.663	1.683				1.670"	1.672"		
AP	0.053	0.073				Ø.063"	Ø.063"		
AQ	0.022	0.042				Ø.022"	Ø.022"		
AR									
AS									
Accept/Reject									

Measured by: J.F.	Audited by: J.A.
Date: 02/06/07	Date: 01.06.27

Rev	Date	Change	Revised by	Approved
A	02.12.12	NEW ISSUE	KURF	

DART AEROSPACE LTD	Work Order: 32373
Description: Ø2.250 Support	Part Number: D2891-1
Inspection Dwg: D2891 Rev. A1	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2891 Rev.A1/DSK076 Rev.A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	5	6	7	8	By	Date
Lathe Section									
A	2.274	2.279		2.278	2.278	2.277	2.278		
B	3.702	3.722		3.710	3.710	3.710	3.713		
C	2.564	2.584		2.574	2.574	2.574	2.574		
D	0.718	0.738		.730	.730	.732	.732		
E	0.090	0.110		.090	.100	.103	.101		
F	2.464	2.484		2.474	2.474	2.474	2.474		
G	2.029	2.049		2.030	2.040	2.040	2.040		
H	2.964	2.984		2.974	2.974	2.974	2.974		
I	0.913	0.933		.922	.922	.920	.930		
J	0.022	0.042		.032	.032	.032	.032		
K	0.090	0.110		.100	.100	.099	.100		
L									
HAAS Section									
AA	0.188	0.193	DT8706						
AB	0.240	0.260							
AC	0.115	0.150							
AD	0.040	0.060							
AE	0.010	0.020							
AF	0.240	0.260							
AG	0.290	0.310							
AH	0.115	0.150							
AI	0.454	0.474							
AJ	2.779	2.789							
AK	0.240	0.260							
AL	1.002	1.042							
AM	0.053	0.073							
AN	0.257	0.262	DT8683						
AO	1.663	1.683							
AP	0.053	0.073							
AQ	0.022	0.042							
AR									
AS									
Accept/Reject									

Measured by:		Audited by:	
Date:	07/06/11	Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	#

DART AEROSPACE LTD	Work Order:	32373
Description: Ø2.250 Support	Part Number:	D2891-1
Inspection Dwg: D2891 Rev. A1		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2891 Rev.A1/DSK076 Rev.A and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				9	10	11	12a		
Lathe Section									
A	2.274	2.279		2.275	2.278	2.278	2.278		
B	3.702	3.722		3.713	3.713	3.713	3.714		
C	2.564	2.584		2.574	2.574	2.574	2.574		
D	0.718	0.738		.728	.728	.728	.730		
E	0.090	0.110		.101	.101	.101	.101		
F	2.464	2.484		2.474	2.474	2.474	2.474		
G	2.029	2.049		2.040	2.040	2.040	2.040		
H	2.964	2.984		2.974	2.974	2.974	2.974		
I	0.913	0.933		.929	.929	.929	.929		
J	0.022	0.042		.032	.032	.032	.032		
K	0.090	0.110		.100	.100	.100	.101		
L									
HAAS Section									
AA	0.188	0.193	DT8706						
AB	0.240	0.260							
AC	0.115	0.150							
AD	0.040	0.060							
AE	0.010	0.020							
AF	0.240	0.260							
AG	0.290	0.310							
AH	0.115	0.150							
AI	0.454	0.474							
AJ	2.779	2.789							
AK	0.240	0.260							
AL	1.002	1.042							
AM	0.053	0.073							
AN	0.257	0.262	DT8683						
AO	1.663	1.683							
AP	0.053	0.073							
AQ	0.022	0.042							
AR									
AS									
Accept/Reject									

Measured by: 8.5
Date: 07/06/07

Audited by:
Date:

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	[Signature]

DART AEROSPACE LTD	Work Order: 32373
Description: Ø2.250 Support	Part Number: D2891-1
Inspection Dwg: D2891 Rev. A1	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2891 Rev.A1/DSK076 Rev.A and record below:

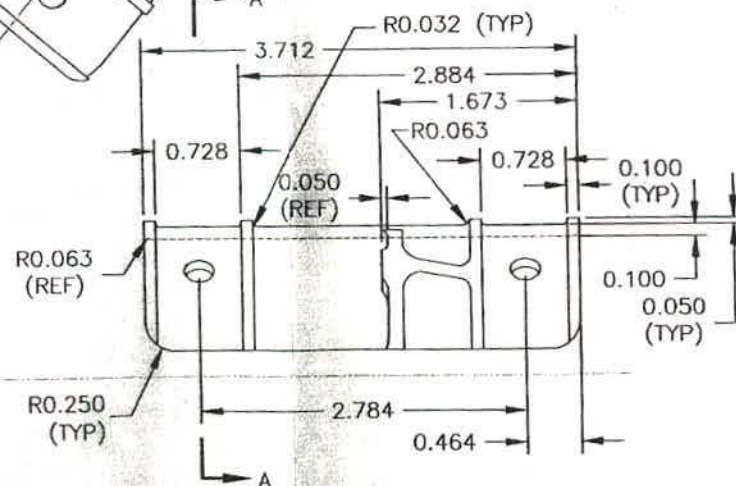
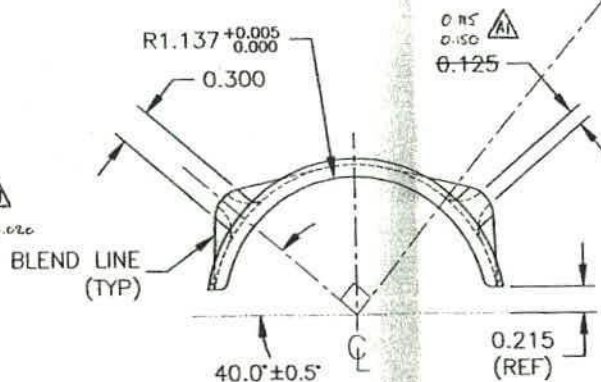
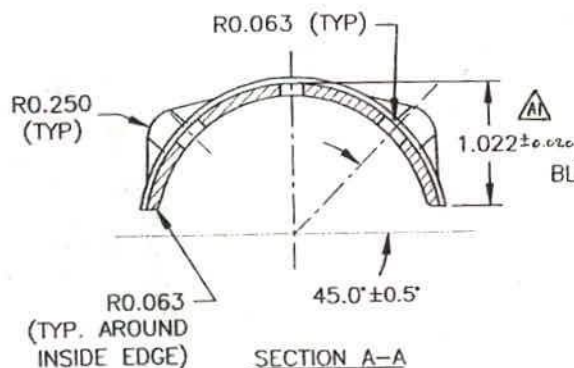
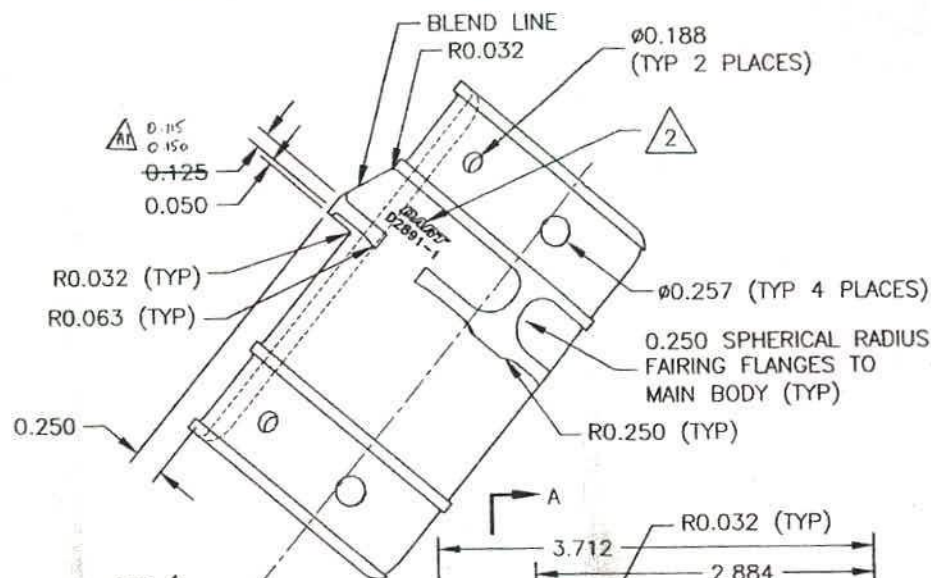
				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	13	14	15	16	By	Date
Lathe Section									
A	2.274	2.279		2.277	2.277	2.277	2.277		
B	3.702	3.722		3.706	3.710	3.710	3.710		
C	2.564	2.584		2.574	2.574	2.574	2.574		
D	0.718	0.738		.730	.730	.730	.730		
E	0.090	0.110		.101	.101	.101	.101		
F	2.464	2.484		2.474	2.474	2.474	2.474		
G	2.029	2.049		2.040	2.040	2.040	2.040		
H	2.964	2.984		2.974	2.974	2.974	2.974		
I	0.913	0.933		.925	.929	.890	.910		
J	0.022	0.042		.032	.032	.032	.032		
K	0.090	0.110		.101	.099	.084	.082		
L									
HAAS Section									
AA	0.188	0.193	DT8706						
AB	0.240	0.260							
AC	0.115	0.150							
AD	0.040	0.060							
AE	0.010	0.020							
AF	0.240	0.260							
AG	0.290	0.310							
AH	0.115	0.150							
AI	0.454	0.474							
AJ	2.779	2.789							
AK	0.240	0.260							
AL	1.002	1.042							
AM	0.053	0.073							
AN	0.257	0.262	DT8683						
AO	1.663	1.683							
AP	0.053	0.073							
AQ	0.022	0.042							
AR									
AS									
Accept/Reject									

Measured by: JLB	Audited by:
Date: 01/06/07	Date:

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	#

D2891-1

- 1) MATERIAL: 17-4 PH STAINLESS STEEL
HEAT TREAT TO H900 CONDITION
(900°F FOR 1 HR, AIR COOL)
MIN UTS = 170 KSI (38 HRc)
- 2) IDENTIFY WITH DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP.
- 3) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 (REF. X.XXX = ± 0.010) UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES
- 7) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3



NO. 22373
WORK ORDER
WITHOUT NOTICE
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

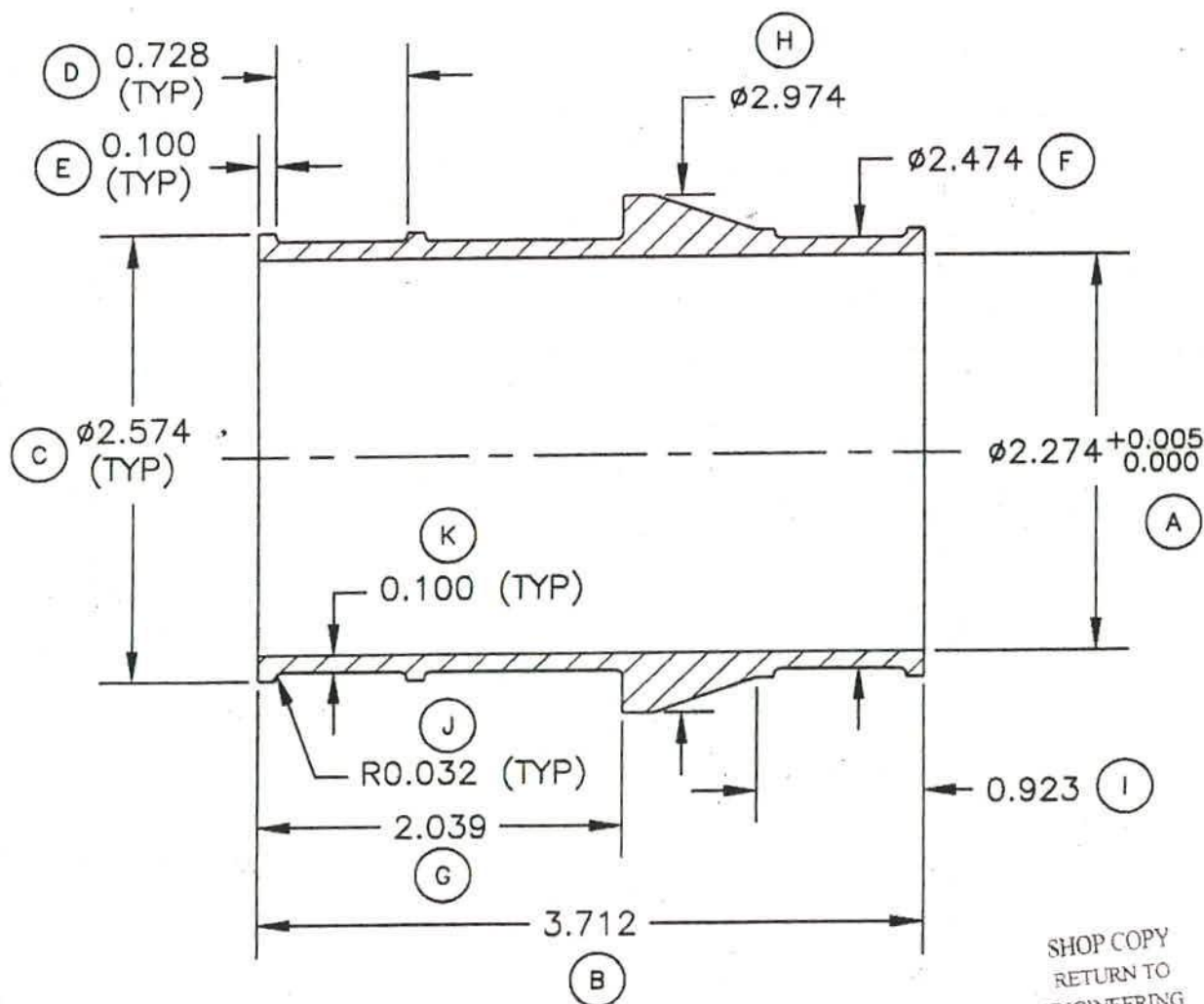
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AI	02.01.23	UPDATE DIMS AS MANUFACTURED
A	00.11.17	NEW ISSUE
DESIGN	CP	DART
CHECKED	CP	DART AEROSPACE LTD.
DATE	00.11.17	DRAWING NO. D2891
		TITLE #2.250 SUPPORT
		REV. A SHEET 1 OF 1 SCALE 1:1

DART

DESIGN RT	DRAWN BY RT	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. DSK 076	REV. A SHEET 1 OF 1
DATE 03.05.20		TITLE TURNING DETAIL FOR D2891-1	SCALE 1:1
A	03.05.20	NEW ISSUE	

RELEASED
03.07.01 [Signature]D2891-1 TURNING DETAILSHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 32313

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EQUISITION CLIENT-CUSTOMER REQUISITION NO.

NO. COM. CLIENT-CUST. ORD. NO.

3795

A.M. CASTLE & CO. (Canada) Inc.

EXPÉDIE MAI 2007 72

TEUR-PURCHASING AGENT

NDA LACELLE

TELEPHONE

613 632-3336

HC TAXE NO. COM ORD

9 0 1

REGION LIVRAISON-DEL ZONE

C/C

F.A.B.-F.O.B.

PRÉPAID

BILL

NO. FEVILLE/EMBALLAGE-B/L NUMBER

A-SHIP TO:

VENDU A-SOLD TO:

DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

INFORMATION CRÉDIT-CREDIT INFORMATION

Opéré par / Operated by: TRANSPORT TFI 5 SEC • NIR : R564638-6



19048584-1

ROUTE

01*NL-05/25
31-NL-05/25

CTIONS/LIVRAISON-DELIVERY

IQ-E55353

INSTRUCTIONS LIVRAISON (CONT.)-DELIVERY (CONT'D.)

PTION - ITEM 1

2500 RD 17CR-4NI RT SOL. TREATED COND A 3.00"
GOLD

CERTIFICAT DE CONFORMITE

See Packing Slip for English Certificate of Conformance

I. Castle & Co. (Canada) Inc. certifie que le matériel fourni
près ce document rencontrera et est conforme aux
ifications du produit(s) décrit(s) ci-contre.

A.M. Castle & Co. (Canada) Inc.

DS POUR EXPEDITION SEULEMENT. VOIR FRACTURE
JR LE POID EXACT FRACTURE. SVP SIGNER ET
ER LA COPIE DU CHAUFFEUR POUR RÉCEPTION DU
TERIAL ET, SI VÉRIFIÉ, CERTIFICAT D'ANALYSE.

PTION - ITEM 2

INSTRUCTIONS

TOL + 1/8" - 0

PRIOR DIST/ORD: 01 931733

COULÉE INFO-HEAT INFO QTE-QTY

G9723 WHITE 20

A18564 GOLD 11

A18289 1

INSTRUCTIONS (CONT'D.)

32x3825"

QTE/UNITE COM.-ORDERED

32 PCS

PCS

POIDS COM.-WT. ORDERED

286

BALLOTS-BUNDLES

PCS/POD EXP. SHIP

POIDS EXP.-WT. SHIPPED

1 32

286

FORME-SHAPE

I.A.C.

42470

ENT.-WHS

4

INSTRUCTIONS

TERMES ET CONDITIONS

PREPAID
DISPENSE DE RESPONSABILITE
RESTRICTION DE RESPONSABILITE
AU VERSO

1 Box

COULÉE INFO-HEAT INFO QTE-QTY

INSTRUCTIONS (CONT'D.)

31-507
328502

PTION - ITEM 3

S / Métaux Castle

ES DIFFÉRENCES: 835 SAILMEK
A COPIE RECULVRAISON ET LA FEUILLE D'EMBALLAGE ET
PACETTES DE CLIENTS. LE COMMANDEUR DOIT ÉTRE INDIQUÉ
NT INDIQUÉ. DOIT ÉTRE SOUMIS DANS LES 10 JOURS
QU'UN CRÉDIT EST REQUIS.
306644 2

INSTRUCTIONS

1 Box

COULÉE INFO-HEAT INFO QTE-QTY

286 #

INSTRUCTIONS (CONT'D.)

QTE/UNITE COM.-ORDERED

POIDS COM.-WT. ORDERED

BALLOTS-BUNDLES

PCS/POD EXP. SHIP

POIDS EXP.-WT. SHIPPED

FORME-SHAPE

I.A.C.

ENT.-WHS

LETTRE MOULÉE-NOME (PRINT ONLY)

PAR-RECEIVED BY

DATE RECULV
DATE RECEIVED

RECU/LIVRAISON DELIVERY RECEIPT

06-06-'07 09:37 FROM-metalex castle

514-695-3281

T-635 P004/005 F-254

SP 425, 50-A



P.O. BOX 977
SYRACUSE
NEW YORK 13201

CERTIFICATE OF TEST

S
O
L
D
T
O

A H CASTLE, INC

3400 N WOLF RD

FRANKLIN PARK, IL 60131

S
H
I
P
T
O

A H CASTLE, INC

3400 N WOLF RD

FRANKLIN PARK, IL 60131

CUR ORDER NO.

PS-17025-6-1

DATE

11 02 2007

CUSTOMER ORDER # & DATE

01-23367

CUSTOMER REQ. #

DISTRICT

R PARSONS

SHIPPED
FROM

SYRACUSE

DESCRIPTION OF MATERIAL

SIZE

3.250 RD

CRU 17-4PH RT A IAC 42470

ANC 3174-10 REV 7 ASME-SAS64-04ED T630 ASTM-A564-04 T630

AMS-56430 (EX SURFACE) ATSI 630 UNS-S17400

CHEMICAL ANALYSIS

HEAT NO.

A18564

C
.034Mn
.60P
.030S
.018SI
.45NI
4.04CR
15.20MO
.11CU
3.13CB
.26Ti
.10

CASTLE METALS FP
DATE REC'D 3/9/07 IAC 42470
APPROVED BY: SW

MECHANICAL PROPERTIES

QUANTITY

HEAT NO.

1187 # A18564

TENSILE PSI YLD. 2XPSI

EELONG4D

RED/AREAL

HARDNESS

BHN 350

CAPABILITY PHYSICALS AFTER 500 DEG. F. ~ 1 HR. AIRCOOL:
205.660 180.640 12.6 53.3 BHN 410

MACRO TEST OK

FERRITE 3 %

MAGNAFLUX F/S = 0/0

REDUCTION RATIO: 27.511

MATERIAL SOLUTION TREATED AT 1900 DEG. F. HELD 45 MINUTES AT TEMPERATURE -
AIRCOOLED.

CRUCIBLE MATERIALS CORP. VENDOR #18610.

MATERIAL INGOT CAST.

NAFTA - YES

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT
NO WELD REPAIR PERFORMED
MATERIAL MELTED IN U.S.A.

THANK YOU FOR SELECTING A QUALITY PRODUCT
MANUFACTURED BY THE EMPLOYEES OF CRUCIBLE SPECIALTY METALS

SWORN TO AND SUBSCRIBED BEFORE ME THIS

DAY OF _____, 20

CERTIFIED
BY:

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED IN ACCORDANCE WITH ABOVE SPECIFICATIONS AND IS IN CONFORMANCE WITH THE SPECIFICATION REQUIREMENTS.
CRUCIBLE MATERIALS CORPORATION
ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION
QUALITY ASSURANCE REPRESENTATIVE

06-06-'07 09:37 FROM-metalex castle

514-695-3281

T-635 P005/005 F-254



CERTIFICATE OF TEST

S O L D T O	A M CASTLE, INC	S H I P T O	A M CASTLE, INC	OUR ORDER NO.
	3400 N WOLF RD FRANKLIN PARK, IL 60131		3400 N WOLF RD FRANKLIN PARK, IL 60131	PS-17223-6-7 DATE 03/14/07

CUSTOMER ORDER # & DATE

CUSTOMER REQ. #

DISTRICT

SHIPPED FROM

SYRACUSE

01-21167

B PARSONS

DESCRIPTION OF MATERIAL

SIZE

CRU 17-4PH RT A IAC 42470

3.250 RD

AMC-3174-10 REV 7 ASME-SA564-04ED T630 ASTM-A564-04 T630
AMS-5643Q (EX SURFACE) AISI 630 UNS# 817400

HEAT NO.

CHEMICAL ANALYSIS

A18289	C	MN	P	S	SI	NI	CR	MO	CU	CB	TA
	.046	.50	.027	.021	.61	4.17	15.11	.14	3.39	.27	.009

CASTLE METALS CORP.
DATE RCVD 3-15-07
IAC 42470
APPROVED BY JL

QUANTITY

HEAT NO.

MECHANICAL PROPERTIES

678 # A18289 TENSILE PSI YLD.2KPSI XELONG2IN RED/AREA HARDNESS
BHN 363

CAPABILITY PHYSICALS AFTER 900 DEG. F. - 1 HR. AIRCOOL:
204,770 179,850 13.8 52.6 BHN 415

MACRO TEST OK

FERRITE 3 %

MAGNAFLUX F/S = 0/0

REDUCTION RATIO: 27.5:1

MATERIAL SOLUTION TREATED AT 1900 DEG. F. HELD 45 MINUTES AT TEMPERATURE -
AIRCOOLED.

CRUCIBLE MATERIALS CORP. VENDOR #18610.
MATERIAL INGOT CAST.

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT
NO WELD REPAIR PERFORMED
MATERIAL MELTED IN U.S.A.

THANK YOU FOR SELECTING A QUALITY PRODUCT

MANUFACTURED BY THE EMPLOYEES OF CRUCIBLE SPECIALTY METALS

SWORN TO AND SUBSCRIBED BEFORE ME THIS

DAY OF _____, 20

NOTARY PUBLIC

CERTIFIED BY:

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED IN ACCORDANCE
WITH ABOVE SPECIFICATIONS AND IS IN CONFORMANCE WITH THE
SPECIFICATION REQUIREMENTS.

CRUCIBLE MATERIALS CORPORATION
ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION

QUALITY ASSURANCE REPRESENTATIVE

JACKIE L. WHITE - SPECIFICATION EXAMINER

CERTIFICATE OF TESTS

CERT SERIAL# 000479979


TALLEY METALS
 A Carpenter Company

Talley Metals Technology, Inc.

P.O. Box 2498

Harrisville, SC 29551 Tel: 843-335-7540 Fax: 843-335-5465

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

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12/10/04

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKAUFER / VENDEUR PAGE 1 OF 2

 A.M. CASTLE & CO
 3400 N WOLF RD
 FRANKLIN PARK, IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
01-28383-01	W67225	12/10/04	9153

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: G9723

 PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
 PART NUMBER: IAC 42470

 SPECIFICATION: CASTLE 3174-10 CAP OF COND. H900 REV. 5 (02/18/04)
 AMS 5643 REV Q (01/703) (UNS S17400) (AISI 630)
 ASTM-A564-04
 ASME-SA564 2001 EDITION

SIZE 3.250000 IN. (82.55 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%):

C	MN	SI	P	S	CP
0.03	0.84	0.48	0.019	0.026	15.32
NI	MO	CU	N	CB	PP
4.42	0.29	3.61	0.032	0.25	0.01
CE+TA					
0.26					

 THIS HEAT MELTED BY THE ARC/AOD PROCESSES
 NO WELD REPAIR.
 MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE
 CONTAMINATION.

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HB - 321 (MIDRADIUS)

MAGNETIC PARTICLES: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE 1.60%

SOLUTION ANNEALED 1900 F - 1 HOUR - RAPID COOL

HOT REDUCTION RATIO: 8:1

MATERIAL WAS MELTED AND MANUFACTURED IN THE USA.

CASTLE METALS FT

DATE REC'D 12.15.04 IAC 42470

APPROVED BY

CONTINUED ON NEXT PAGE

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CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000479979


TALLEY METALS
 A Carpenter Company

 Talley Metals Technology, Inc.
 P.O. Box 2498

Hareville, SC 29551 Tel: 843.335.7540 Fax: 843.335.6465

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12/10/04

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKAUFER / VENDEUR PAGE 2 OF 2

 A.M. CASTLE & CO
 3400 N WOLF RD
 FRANKLIN PARK , IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REPONSE INTERNE	DATE/DATE/DATE	WEIGHT/GEWICHT/POIDS
01-28383-01	W67226	12/10/04	9153

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE:

G9723

CAPABILITY

900 F(482 C), 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI(MPA)

192.0(1324)

TENSILE STRENGTH, KSI(MPA)

202.0(1393)

ELONGATION IN 2.00", %

13.0

REDUCTION OF AREA, %

46.0

HARDNESS, HB

401.0

(CONVERTED FROM TENSILE STRENGTH)

 WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE
 PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

 TIMOTHY DUVAL
 QUALITY ASSURANCE REP.
 CARPENTER TECHNOLOGY CORPORATION

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Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: June 26, 2007 6:49 PM
To: 'Chris Provencal'
Cc: 'Murdoch, Jason'; 'Marc Bellavance'
Subject: RE: NCR D2891-1

Chris,

I agree with your assessment of the situation.
Parts are acceptable and the grooves should be buffed out by hand.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Monday, June 25, 2007 11:24 AM
To: '*David Shepherd (*David Shepherd)'
Cc: 'Murdoch, Jason'; 'Marc Bellavance'
Subject: NCR D2891-1

David,

Qty(4) D2891-1 Supports,

The width of one of the ridges is 0.085" instead of 0.100" (ref attached dwg). The overall length is 3.679" on one of them as well (instead of 3.712"). I don't see a problem with this myself.

On one, there are also two concentric grooves, 0.010" deep x 0.150" wide. I figure they can blend using a hand tool, and again I don't see a problem with this.

-Chris

No virus found in this incoming message.

Checked by AVG Free Edition.

Version: 7.5.476 / Virus Database: 269.9.7/868 - Release Date: 6/25/2007 12:20 PM

No virus found in this outgoing message.

Checked by AVG Free Edition.

Version: 7.5.476 / Virus Database: 269.9.7/868 - Release Date: 6/25/2007 12:20 PM

27/06/2007